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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,623	02/12/2004	Jeffrey G. Thompson	05165.1480	3960

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BAKER & HOSTETLER LLP
Washington Square
Suite 1100
1050 Connecticut Avenue, N.W.
WASHINGTON, DC 20036

EXAMINER	
WEBB, CHRISTOPHER G	

ART UNIT	PAPER NUMBER
2884	

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/776,623	THOMPSON ET AL.	
	Examiner	Art Unit	
	Christopher G. Webb	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-9,11,13-19 and 21* is/are rejected.

7)☒ Claim(s) *6,10,12,20 and 22-31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4-5, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis in view of Burkhardt et al. (US 5,634,378, hereafter Burkhardt).

With respect to claim 1, Lewis discloses a portable thermal imaging apparatus for analyzing a specimen having a surface, comprising: a base framework (fig. 2, element 116) that removably attaches to a specimen (fig. 2, element 114); a frame that attaches to said base framework (the 'source mounting arm' of col. 3, lines 15-21); a sound source that mounts to said frame (fig. 2, element 118) and couples its energy to the specimen (col. 5, lines 56-61); a thermal imaging camera directed toward the specimen (fig. 2, element 112); and a controller connected to said sound source and said thermal imaging camera (fig. 2, element 124). Lewis does not disclose that the attached frame is slideable. Burkhardt discloses a portable scanning frame with a slideable attachment (fig. 2, element 60). It would have been an obvious design choice at the time of invention to one of ordinary skill in the art to use the slideable frame in place of the source-mounting arm to allow for a more versatile system. The use of and need for multiple data points across a surface is known in the art, and Burkhardt represents one

method to achieve this. Furthermore, in fig. 1 of Lewis, the entire apparatus is shown as being on rails.

As to claim 2, Lewis does not disclose that the frame is mounted to the base framework via at least one sliding fitting that translated along an axis generally parallel to the surface of the specimen. Burkhardt teaches a sliding fitting for attaching the frame (fig. 1, element 62) to the framework. It would have been an obvious design choice at the time of invention to one of ordinary skill in the art to attach the frame to the framework in this manner also to allow for more versatility of the equipment. Furthermore, it would be obvious to one skilled in the art to orient the frame so that it translates along an axis roughly parallel to the specimen to obtain an accurate scan.

As to claim 4, Lewis discloses that said base framework further comprises at least one guide rail (at fig. 1, element 116).

As to claim 5, Lewis discloses that the guide rail comprises a structural extrusion (fig. 1, element 116).

As to claim 6, Lewis discloses a system for attaching the base framework to the specimen (seen generally in fig. 1).

Claims 7-9, 11, 13, 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis in view of Burkhardt as applied to claim 6 above, and further in view of Kröger (DE 4221486 A1, hereafter Kröger).

With respect to claim 7, Lewis in view of Burkhardt does not disclose that the attaching system operates by vacuum. Kröger teaches a vibrator with attaching means

that operates by vacuum (seen generally in the figure, specifically in elements 3 and 4). It would have been an obvious design choice at the time of invention to one of ordinary skill in the art to use a vacuum means for attaching as taught by Kröger so that the apparatus could adhere to a large variety of surfaces and remain in place in the presence of stress such as vibration.

As to claim 8, in addition to the features noted in claim 7, Kröger discloses that the vacuum system comprises a plurality of vacuum cups (elements 3). It would have been obvious at the time of invention to one of ordinary skill in the art to use a plurality of vacuum cups, as multiple suction cups are known to exhibit much more reliable suction than a singular cup.

As to claim 9, Lewis in view of Burkhardt and Kröger does not explicitly disclose the use of vacuum cups pivotably attached to the base framework. However, it would be an obvious design choice to one skilled in the art to attach the cups pivotably to the framework. The use of pivotable cups in vacuum systems is common and would allow adhesion to non-planar surfaces.

As to claim 11, Lewis does not disclose a fitting to accept a clamp. Burkhardt discloses a magnetic clamp (fig. 3, element 88). It would have been obvious at the time of invention to one of ordinary skill in the art to use a clamp in the apparatus of Lewis because not all method of adhesion are viable for all surfaces, and a clamping mechanism would allow for versatility. It is noted that Burkhardt discloses a clamp, not a fitting for a clamp. However, one of ordinary skill would appreciate that the clamp must be connected to the framework in some manner.

Regarding claim 13, the system is suggested by the system described above, wherein the "means for attaching" is the clamp or vacuum system, the "means for moving" is the translational rail, the "means for generating an acoustic signal" is the sound source, the "means for detecting thermal response" is the thermal imaging camera, and the "means for controlling" is the controller. Claim 13 is rejected accordingly.

As to claim 16, the "means for pressureably coupling" is equivalent to the vacuum cups in the system above. Claim 16 is rejected accordingly.

As to claim 17, Lewis discloses that the detecting means further comprises a means for storing an image acquired by said detecting means (fig. 4A, element 424), a means for displaying an image acquired by said detecting means (fig. 4A, element 422), and a means for joining a plurality of acquired images into a single composite (fig. 4B, element 428).

Claims 3, 14-15, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis in view of Burkhardt as applied to claim 1 and Lewis in view of Burkhardt and Kröger as applied to claim 13 above, and further in view of Feamster (US 4,304,133 hereafter Feamster).

With respect to claim 3, Lewis in view of Burkhardt does not disclose that the sliding fitting comprises a linear bearing. Feamster teaches the use of a linear bearing (fig. 2, element 42) for movement of the scanning head. Lewis does disclose that the

assembly joints are similar to the joints used in the scanner head assembly (col. 3, lines 26-28). It would have been obvious at the time of invention to one of ordinary skill in the art to use the joints taught by Feamster as the joints in the scanner assembly as well as the framework, largely because linear bearings are designed for such uses.

With respect to claim 14, Lewis in view of Burkhardt and Kröger does not disclose that the moving means comprises means for minimalizing frictional drag of said moving means. Feamster teaches a means for minimalizing frictional drag of the moving means in a similar apparatus (fig.2, element 42). It would have been obvious at the time of invention to one of ordinary skill in the art to use the friction minimalization means of Feamster in the apparatus taught by Lewis in view of Burkhardt and Kröger, as it would allow for a more accurate image to be obtained as well as smoother movement of the apparatus.

As to claim 15, Lewis in view of Burkhardt and Kröger does not disclose a means for releasably locking the apparatus in a position. Feamster discloses such a mechanism (fig. 1, element 80). It would have been obvious at the time of invention to one of ordinary skill in the art to include a mechanism on such a scanning apparatus, as it is often desirable to lock a scanning head in position when examining a particular area, especially in the presence of factors such as vibration generated by sound.

Regarding claim 18, the method as recited according to claim 19 is suggested by the system suggested by Lewis in view of Burkhardt and Kröger as applied above and is rejected accordingly.

As to claim 19, the additional steps that comprise the step of repositioning are suggested by the system of Lewis in view of Burkhardt and Kröger and further in view of Feamster and are rejected accordingly.

With regard to claim 21, the system of claim 21 is suggested by the system suggested by Lewis in view of Burkhardt as applied above with the additional limitation of a varying-frequency acoustical energy source found in claim 6 of Lewis. Claim 21 is rejected accordingly.

Allowable Subject Matter

Claims 10, 12, 20, and 22-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: A scanning apparatus was not found or suggested by the prior art that featured selectively activatable vacuum cups. Additionally, the steps of activating, monitoring, and deactivating the drive mechanism were not found in the corresponding method. Finally, the prior art did not teach or suggest the sound source comprising a linear stroke piston that oscillates at a varying rate.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher G. Webb whose telephone number is (571) 272-8449. The examiner can normally be reached on 9AM - 5:30PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CGW

DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800